

# The Structure of Cationic Polyisoprene: Branching versus Cyclization

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## Abstract

© 2016 WILEY-VCH Verlag GmbH & Co. KGaA, WeinheimThe structure, molecular weight, and molecular weight distribution (MWD) of polyisoprene fractions, which were obtained during the fraction of polyisoprene with broad MWD ( $M_w/M_n = 25.6$ ) synthesized with  $t\text{BuCl/TiCl}_4$  initiating system have been investigated. It is established that chain transfer to polymer leading to branched macromolecules is responsible for the formation of polyisoprene with broad MWD and reduced unsaturation. It is shown for the first time that unsaturation decreased while the content of head and end groups in a single macromolecule increased with increasing molecular weight of polyisoprene fraction. The unsaturated part of the polymer chain consists of presumably *trans*-1,4-units independently of the molecular weight of polyisoprene fraction. (Figure presented.).

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## Keywords

cationic polymerization, fractionation, microstructure, polyisoprene